

IN THE DRAWINGS

Please replace the drawings sheets for Figures 7A, 7B, 7C, 7D, 8, and 9 with the replacement drawing sheets attached to the Submission of Corrected Drawings submitted herewith.

REMARKS

Claims 1-31 are pending in the application. Claims 10-15 are withdrawn from consideration a being directed to a non-elected invention. In the non-final Office Action of March 7, 2007, the Examiner made the following disposition:

- A.) Objected to Figures 7-9.
- B.) Objected to claims 9 and 24.
- C.) Rejected claims 1-8, 16-23 and 27-31 under 35 U.S.C. §102(e) as being anticipated by *Fox*.
- D.) Rejected claims 9 and 24 under 35 U.S.C. §103(a) as being unpatentable over *Fox*.
- E.) Rejected claim 25 under 35 U.S.C. §103(a) as being unpatentable over *Fox* and *Fossum*.
- F.) Rejected claim 26 under 35 U.S.C. §103(a) as being unpatentable over *Fox* and Applicant's Background Art (AAPA).

Applicant respectfully traverses the rejection and addresses the Examiner's disposition below.

Claims 9, 24, and 30 have been amended.

A.) Objection to Figures 7-9:

Figures 7A, 7B, 7C, 7D, 8, and 9 have been amended as per the Examiner's request to be labeled "RELATED ART."

B.) Objection to claims 9 and 24:

Claims 9 and 24 have been amended as per the Examiner's request to overcome the objection. Specifically, claims 9 and 24 have been amended to clarify the drain transistor gate wiring 215A (See Figure 3) is short-circuited common between all pixels at an outside of the imaging region section. (Specification, page 17, lines 7-10).

Referring to Figure 3 as an illustrative example, Applicant notes claims 9 and 24 correctly recite the transfer transistor 211, the reset transistor 214 and the amplifying transistor 212 have respective gate wirings provided in a direction along the pixel row, to be driven on a pixel-row basis and the drain transistor has a gate wiring provided in a direction along the pixel column.

Applicant respectfully submits the rejection has been overcome and requests that it be withdrawn.

C.) Rejection of claims 1-8, 16-23 and 27-31 under 35 U.S.C. §102(e) as being anticipated by *Fox*:

Applicant respectfully disagrees with the rejection.

Independent claims 1, 16, 27, and 30 each claim subject matter relating to a solid-state imaging device in which both a channel potential on a drain transistor that is turned on and a channel potential on a transfer transistor that is turned on are set higher than a potential for depleting a photodiode. This is shown, for example, in Figures 6(2) and 6(4) and described in the specification as follows:

The first feature of the present embodiment thus configured lies in that the PD 219 is of an HAD structure and wherein the channel voltage during on of the drain Tr 215 is higher than a potential for depleting the PD 219, enabling to drain nearly all the electrons out of the PD 219. Because this renders the remaining electrons on the PD 219 nearly zero, no great variations occur in the initial state of the PDs 219 even in case there is characteristic variations between the drain Trs 215.

Meanwhile, the second feature lies in that the channel voltage during on of the transfer Tr 211 also is higher than a potential for depleting the PD 219, enabling to transfer nearly all the electrons out of the PD 219. Because this renders the remaining electrons on the PD 219 nearly zero, no great variations occur in the post-transfer state of the PDs 219 even where there is characteristic variations between the transfer Trs 211.

Specification, page 24, lines 9-25.

This is clearly unlike *Fox*, which fails to disclose or suggest a solid-state imaging device in which both a channel potential on a drain transistor that is turned on and a channel potential on a transfer transistor that is turned on are set higher than a potential for depleting a photodiode. The Examiner argues *Fox* Figure 3 teaches this claimed subject matter. Applicant disagrees. Instead, *Fox* Figure 3 clearly teaches potentials at EC and Tck that are always higher than the potential at its photo diode, even during charge transfer and drain. Unlike Applicant's claimed invention, nowhere does *Fox* suggest both a channel potential on a drain transistor that is turned on and a channel potential on a transfer transistor that is turned on are set higher than a potential for depleting a photodiode.

For at least this reason, *Fox* fails to disclose or suggest claims 1, 16, 27, and 30.

Claims 2-8, 17-23, 28, 29, and 31 depend directly or indirectly from claims 1, 16, 27, or 30 and are therefore allowable for at least the same reasons that claims 1, 16, 27, and 30 are allowable.

Applicant respectfully submits the rejection has been overcome and requests that it be withdrawn.

D.) Rejection of claims 9 and 24 under 35 U.S.C. §103(a) as being unpatentable over *Fox*:

Applicant respectfully disagrees with the rejection.

Claims 1 and 16 is allowable over *Fox* as discussed above.

Claims 9 and 24 depend directly or indirectly from claims 1 or 16 and are therefore allowable for at least the same reasons that claims 1 and 16 are allowable.

Applicant respectfully submits the rejection has been overcome and requests that it be withdrawn.

E.) Rejection of claim 25 under 35 U.S.C. §103(a) as being unpatentable over *Fox* and *Fossum*:

Applicant respectfully disagrees with the rejection.

Claim 16 is allowable over *Fox* as discussed above. *Fossum* still fails to disclose or suggest a solid-state imaging device in which both a channel potential on a drain transistor that is turned on and a channel potential on a transfer transistor that is turned on are set higher than a potential for depleting a photodiode. Therefore, *Fox* in view of *Fossum* still fails to disclose or suggest claim 16.

Claim 25 depends directly or indirectly from claim 16 and is therefore allowable for at least the same reasons that claim 16 is allowable.

Applicant respectfully submits the rejection has been overcome and requests that it be withdrawn.

F.) Rejection of claim 26 under 35 U.S.C. §103(a) as being unpatentable over *Fox* and Applicant's Background Art (AAPA):

Applicant respectfully disagrees with the rejection.

Claim 16 is allowable over *Fox* as discussed above. *AAPA* still fails to disclose or suggest a solid-state imaging device in which both a channel potential on a drain transistor that is turned on and a channel potential on a transfer transistor that is turned on are set higher than a potential for depleting a photodiode. Therefore, *Fox* in view of *AAPA* still fails to disclose or suggest claim 16.

Claim 26 depends directly or indirectly from claim 16 and is therefore allowable for at least the same reasons that claim 16 is allowable.

Applicant respectfully submits the rejection has been overcome and requests that it be withdrawn.

CONCLUSION

In view of the foregoing, it is submitted that claims 1-9 and 16-31 are patentable. It is therefore submitted that the application is in condition for allowance. Notice to that effect is respectfully requested.

Respectfully submitted,

 (Reg. No. 45,034)
Christopher P. Rauch
SONNENSCHEIN, NATH & ROSENTHAL LLP
P.O. Box #061080
Wacker Drive Station - Sears Tower
Chicago, IL 60606-1080
Telephone 312/876-2606
Customer #26263
Attorneys for Applicant(s)